

AMENDMENTS

I. AMENDMENT TO THE ABSTRACT

On page 13, please amend the Abstract by deleting the second paragraph.

REMARKS

II. REPLY TO REJECTION OF CLAIMS 1-4, 6 & 14 MADE UNDER 35 USC§103(a)

A. Summary of the Rejection

Claims 1-4, 6 & 14 have been rejected under 35 USC §103(a) as being unpatentable over US Patent No. 6,223,010 to Araki (hereinafter referred to as “the ‘010 patent” or “Araki”) in view of US Patent No. 4,549,066 to Piccioli et al (hereinafter referred to as “the ‘066 patent” or “Piccioli ”).

The Office Action admits that:

Araki does not teach the use of a gimbal (that rotation of the part). Nevertheless, the Office Action alleges that it would have been obvious:

. . . to use a rotation device, as taught by Piccioli et. in the Araki system because of the enhanced ease of product handling during the disassembly process.

B. The Office Action Fails to Address, and the Cited References Fail to Teach the “Computer Processor” Element Set Forth in Each Rejected Claim

In reply Applicant first would emphasize that the Office Action ignored an element that was affirmatively, expressly and clearly set forth in each of the presently rejected claims. That

element is “a computer processor.” Neither reference discloses expressly or inferentially “a computer processor.” All of these rejected claims require “a computer processor.” Thus, in the apparatus of the rejected claims the container disassembling apparatus includes, at paragraph 2 of claim 1, a laser operationally connected to a computer processor and adapted to project a laser light beam to cut “along a predetermined light path.” Similarly, in the disassembling method of claim 6 and its dependent claim 14, the disassembly process includes “ . . . providing a computer processor operationally connected with . . .” the gimbal. As is apparent from the remainder of the text of these rejected claims and the specification it is the computer processor that provides instructions for the laser to perform a cutting function along a predetermined path at joining surfaces of the container. However, the Office Action makes no mention of this structure, step and function. The cited references are also silent in this regard.

It is fundamental that in order to establish prima facie obviousness, the Patent Office has the burden of showing in the prior art the existence of each of the claimed elements, and motivation to combine the teachings of separate references so as to yield the claimed invention. In regard to the present rejection, the Patent Office has made no such showing, and it is requested that this rejection of claims 1-4, 6 and 14 be withdrawn for this reason alone.

C. The Cited References Teach Away from the Claimed Invention

Ignoring for the moment, but not waiving the failure of the Office Action to address the requirements of a computer processor in the rejected claims, the cited references otherwise teach away from the combination alleged in the Office Action as will be shown below.

First, the pending claims imply a relatively high degree of accuracy in the cutting capability and cutting process, but Araki says, “high accuracy is not required”. Specifically,

Araki is directed to a method of disassembling a resin product having at least two resin-molded parts, with an example of the product being a cartridge for use in a copier or laser printer. One of the objectives of Araki is a process by which such a cartridge can be disassembled without damaging recyclable parts. 2:15-18. In all embodiments described, Araki achieves his objective by cutting through the cartridge with a laser beam at certain points and not cutting through the cartridge at other points. A layer of material that is difficult to cut by the laser is placed over those regions of the cartridge near recyclable parts, thus preventing cutting of the cartridge at those locations. Numerous examples of the protective layer preventing laser cutting are described in Araki: in Figure 3 the toner feeding member 10a and driving gear 10e are covered by a metal foil 15 that prevents cutting by a laser beam; in Figure 5 the developing sleeve is protected by the foil and not cut; in Figure 6 it is the magnet that is protected. Araki emphasizes that the constituent parts of the cartridge may be placed into one of two categories: "relatively easily reusable parts" and "parts like resin molded parts such as the toner frame 12a and the cleaning frame 12b, which are difficult to disassembly without being cut or destroyed, and are rather suited to be melted and recycled as a resin material." 9: 17-25.

Also, Araki provides for a relatively wide range of cutting positions within which the laser may cut the unprotected regions of the cartridge. These regions of cutting are shown, for example in Figure 3 as range 15w, in Figure 4 as range 16w, and so forth. Araki emphasizes that "the laser may be anywhere within the range of the width . . . of the metal foil . . . , and high accuracy of the cut position is not required." 13: 43-46.

In sharp contrast the presently claimed invention cuts through the container's "thermoplastic joining surfaces" along the path that is defined by those joining surfaces, which implies a relatively high degree of accuracy needed for the laser to focus its beam at the

interface, and implies the recycling of the container itself – one of the parts that Araki teaches should “be melted.”

Thus, Araki teaches disassembly of a cartridge frame that has material difficult to cut by a laser positioned over recyclable parts to protect them from cutting, so that these recyclable parts can easily be removed from the remaining parts of the frame that have been cut by the laser, and so that the cartridge itself is to be melted. Such a disassembly teaches away from using a cartridge that is recycled by re-welding, with the disassembly of the cartridge requiring high accuracy in laser cutting, such as implied by the presently rejected claims. For this reason alone, it is requested that the rejection be withdrawn.

Second, the apparatus claims require the capability of, and the process claims expressly require cutting of the container along the interface between its joining surfaces, but neither cited reference has any such teaching. Rather, because Araki is concerning with cutting the container in ways to preserve alleged recyclable parts, his process makes cuts along paths unrelated to the joining surfaces of the container. See, for example the various potential cut lines shown in Figures 3, 5, 6 and 7. Furthermore, Araki has no disclosure of any structure or technique by which the joining surfaces of a resin container can be identified, much less any structure or process by which a laser cutter might be controlled to cut along a path defined by the interface of the joining surfaces. These limitations were also not addressed in the Office Action, and such failure is another reason why prima obviousness has not been established by the Patent Office.

Piccioli et al is directed to trimming of polyester containers using a laser. Specifically, unitary containers formed by blow molding are divided into at least two parts by cutting with a laser. As shown in the figures, a container is placed on a support 22, and then “rotated about its axis at a fixed portion along the axis, and the article to be divided into the parts 12 and 14 using a

laser beam.” 2:19-24. Thus, Piccioli does not disclose any cutting of any container having interfacing thermoplastic joining surfaces.

When taking into account the descriptions found in Araki and Piccioli et al, i.e., cutting along paths to protect recyclable parts and that are independent of any joining surface interface, and cutting a unitary container that has no joining surface interface, there appears to be no reasonable basis for concluding that the combined teachings of these cited references yield the presently claimed invention. Thus, Applicants requests withdrawal of the rejection for this reason alone.

III. REPLY TO REJECTION OF CLAIMS 7 AND 9-13 MADE UNDER 35 USC

§103(a)

A. Summary of the Rejection

Claims 7 and 9-13 have been rejected under 35 USC §103(a) as being unpatentable over Araki in view of US Patent No. 6,864,294 to Koiki et al (hereinafter referred to as “the ‘294 patent” or “Koiki”).

In this regard it appears that the substance of the rejection is directed to a “finished” or “assembled” container of the type disclosed in the cited references and for which the claimed “disassembled” container is used as one of the starting materials for construction of a finished container. It is noted that the Office Action does not use the term “disassembled” container, but rather uses a broader term “product” to describe what the cited prior art discloses. If the Office Action language was intended to refer to any “disassembled” container, clarification is requested, and it is requested that specific reference to a “disassembled” container having the interface of its joining surfaces cut by a laser be made. Applicant found no such specific reference.

B. The Office Action Fails to Address, and the Cited References Fail to Teach a Disassembled Container Having Jointing Surfaces Cut By a Laser As Required by Each Rejected Claim

The Office Action admits, “Araki does not teach the type of resin material used.” The Office Action fails to address, however, that the claims require that the disassembled container has sections with joining surfaces and that the interface between the joining surfaces is “cut through with a laser beam.” As discussed in detail above, Araki disassembles resin containers along lines that protect recyclable parts, lines that are independent of lines that are defined by the interface between joining surfaces of the container. There is no disclosure in Araki of cutting a container along the interface of its joining surfaces. Thus, Araki fails to teach the claim limitation that requires “said interface cut through with a laser beam,” as required by independent claim 7, at paragraph 4.

Koiki is directed to a recycled plastic material and a container made from such material. However, Koiki’s material is made from pulverized thermoplastic containers used in inkjet apparatus. See 16: 52-63. The pulverized materials are reconstituted and formed into containers. Thus, Koiki also fails to disclose a disassembled container in which the interface between joining surfaces have been cut through with a laser beam. Because Koiki pulverizes the thermoplastic material of the original container, it makes no sense for his process to cut any interface with anything, much less a laser, so that the disassembled container is suitable to be remanufactured.

With neither of the cited references disclosing a disassembled container having the interface of its joining surfaces “cut through with a laser beam” it is not possible that either could provide motivation for a disassembled container having such a feature, and it is also not possible

that any such disassembled container would be the result of any combination of the teachings of these cited references. For all of these reasons withdrawal of the rejection is requested.

IV. REPLY TO REJECTION OF CLAIM 5 MADE UNDER 35 USC §103(a)

Claim 5 has been rejected under 35 USC §103(a) as being unpatentable over Araki and Piccioli and further in view of Koiki for substantially the same reasons as stated in the Office Action in regard to the rejection of claims 1-4, 6-7 and 9-13.

In reply Applicant notes that claim 5 depends from claim 1, and relies on the reasons set forth above in his reply to the rejection of claims 1-4, 6 & 14. With respect to the particular material feature set forth in dependent claim 5, Applicant relies on the reasons set forth above in reply to the rejection to claims set forth above in reply to the rejection to claims 7 and 9-13.

V. REPLY TO REJECTION OF CLAIM 8 MADE UNDER 35 USC §103(a)

Claim 8 has been rejected under 35 USC §103(a) as being unpatentable over Araki and Koiki for substantially the same reasons as stated in the Office Action in regard to the rejection of claims 7 and 9-13, and further in view of US Patent No. 5,676,794 to Baley (hereinafter referred to as “the ‘794 patent” or “Baley”).

In reply Applicant notes that claim 8 depends from claim 7, and relies on the reasons set forth above in his reply to the rejection of claims 7 and 9-13. With respect to the particular configuration set forth in dependent claim 8, Applicant emphasizes that Baley discloses cutting of a container with a “table saw” (4:60-65); no laser cutting is disclosed in Baley; and Baley has no disclosure regarding cutting a container along the interface of joining surfaces. Thus, Baley has no teaching regarding a “disassembled” cartridge in which the interface is cut through with a

laser. Furthermore, Baley describes the path of the circular saw cutting as being linear; rather than circuitous as claimed. Specifically, in one embodiment of Baley, "the container moves linearly along the track past a blade that cuts through . . ." 2:38-42. In the other embodiment, the container is placed on a rail that "moves linearly past the blades to cut through . . . in a single pass." 2: 42-47. For all of these reasons it is believed that the cited references do not teach the claimed invention, and withdrawal is requested.

VI. CONCLUSION

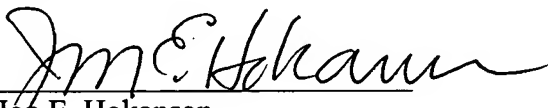
For all of the above reasons it is requested that the rejections be withdrawn and that a Notice of Allowance of all pending claims be forthcoming.

Respectfully submitted,

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